1
CAPACITY BENCHMARKS

This chapter provides an overview of the FAA Airport Capacity Benchmark Report 2001, which analyzed capacity at 31 of the busiest U.S. airports.

In return for purchasing a ticket and arriving at the airport on time, passengers expect their flights to depart and arrive on schedule. When the weather is good, most flights do depart on time, and many of those that depart late can make up lost time in the air. But on a bad day, when storms cause disruptions at or between key airports, hundreds of flights are delayed throughout the national airspace system.

In recent years growth in air passenger traffic has outpaced growth in aviation system capacity. As a result, the effects of adverse weather or other disruptions to flight schedules are more substantial than in years past; more flights are delayed, affecting more passengers (Figure 1-1). This trend is most pronounced during the summer months when traffic is heavy and convective storms effectively shut down key airports and sectors of airspace for several hours at a time. Figure 1-2, which depicts the variation in delays by month, shows that the total number of delays closely tracks the number of weather delays, and that both are sharply higher during the late spring and summer.

Figure 1-1 CY 1995-2000 Percentage Change in U.S. Operations, Enplanements, and Delays

	1995	2000
Operations (M)	62.0	68.7
Enplanements (M)	598.0	706.0
Delays (K)	237.0	450.0

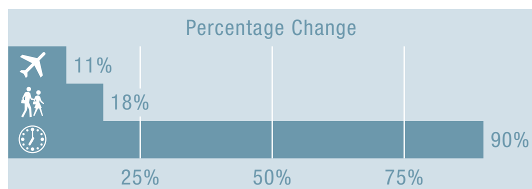
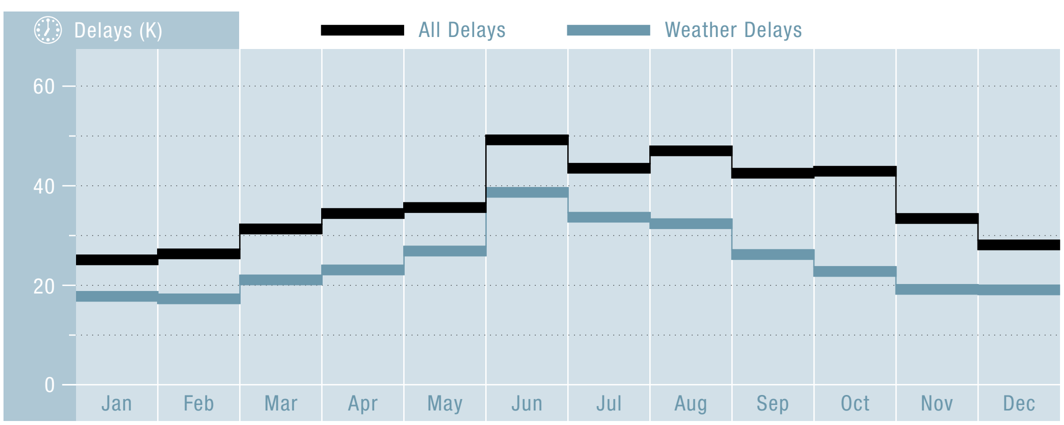


Figure 1-2 Total Delays and Weather Delays by Month CY 2000



In the Fall of 2000 the Department of Transportation, in response to a congressional request, tasked the FAA with developing capacity benchmarks for the nation's busiest airports. The call for benchmarks was primarily motivated by two consecutive summers in which delays increased sharply, despite targeted FAA initiatives to remedy the problem. The FAA's Office of System Capacity played a key role in developing the benchmarks.

1.1 Methodology

The *FAA Airport Capacity Benchmark Report 2001* analyzed capacity at 31 airports: the 30 busiest U.S. passenger airports; and Memphis, a major cargo airport. In CY 2000, these airports accounted for sixty percent of passenger enplanements, and ninety percent of flights delayed 15 or more minutes. The objective of the Benchmark Report was to document the number of flights these airports can handle under optimum and less than optimum weather conditions, and to project future capacity based on plans for new runways, revised air traffic procedures, and technological improvements.

For the purpose of the Benchmark Report, capacity benchmarks were defined as the maximum number of flight arrivals and departures that an airport can routinely handle in an hour. Two benchmark rates were calculated for each airport: an optimum rate and a reduced rate. The optimum rate was defined as the maximum number of aircraft that can routinely be handled using visual approaches during periods of unlimited ceiling and visibility, when there are no traffic constraints in the en route system or airport terminal area. The reduced rate was defined as the number of aircraft that can be handled during periods of poor visibility when radar is required to ensure separation between aircraft, for the runway configuration most commonly used in adverse weather.

Benchmark rates for each airport were estimated by the air traffic controllers for that airport based on their experience in handling flights on a daily basis, and calculated using a computer model of airfield capacity. The facility-provided and calculated estimates were compared to historical arrival and departure data to confirm their validity. In addition, FAA representatives visited several of the airports to validate the methodology.

The benchmarks were then compared to air carrier flight schedules for each airport (based on the Official Airline Guide) to document how frequently scheduled demand exceeds the benchmarks under ideal and less-than-ideal conditions. Capacity benchmarks can be exceeded for a short period of time without producing a large number of delays, but when the number of scheduled flights exceeds the benchmark for sustained periods of time, delays are inevitable.

1.2 Findings

Figure 1-3 shows the following information for the benchmarked airports: optimum and reduced rates; percent difference between those rates; percent of time under instrument flight rules in CY 2000; and delay rate in CY 2000. The airports in Figure 1-3 are listed from the highest to the lowest delay rate. The first eight airports on the list, which have the highest delay rates in the U.S., have been designated as “pacing” airports. These airports are currently the focus of intensified FAA efforts to improve operational efficiency and enhance capacity.

Figure 1-3 Optimum and Reduced Rates at the 31 Benchmarked Airports

Airport (ID)	Optimum Rate	Reduced Rate	Capacity Loss	Percent Time IFR	Delay Rate
New York LaGuardia (LGA)	81	64	21%	20%	155.9
Newark International (EWR)	108	78	28%	19%	81.2
Chicago O'Hare International (ORD)	202	160	21%	15%	63.3
San Francisco International (SFO)	99	72	27%	26%	56.9
Boston Logan International (BOS)	126	88	30%	18%	47.5
Philadelphia International (PHL)	110	96	13%	15%	44.5
New York John F. Kennedy International (JFK)	98	71	28%	14%	38.8
Atlanta Hartsfield International (ATL)	200	174	13%	23%	30.9
George Bush Intercontinental (IAH)	123	113	8%	24%	28.1
Dallas-Fort Worth International (DFW)	270	185	31%	17%	23.8
Phoenix Sky Harbor International (PHX)	110	65	41%	1%	22.0
Los Angeles International (LAX)	150	128	15%	18%	21.9
Washington Dulles International (IAD)	121	117	3%	20%	19.5
Lambert St. Louis International (STL)	112	65	42%	23%	18.2
Detroit Metro Wayne County (DTW)	146	138	5%	23%	17.6
Cincinnati-Northern Kentucky (CVG)	125	125	0%	43%	15.4
Minneapolis-St. Paul International (MSP)	120	112	7%	31%	12.7
Miami International (MIA)	134	108	19%	3%	11.3
Seattle-Tacoma International (SEA)	91	81	11%	29%	10.4
Las Vegas McCarran International (LAS)	85	57	33%	1%	8.0
Ronald Reagan National (DCA)	80	66	18%	14%	8.0
Baltimore-Washington International (BWI)	120	75	38%	13%	6.9
Orlando International (MCO)	145	112	23%	5%	6.3
Charlotte/Douglas International (CLT)	140	116	17%	18%	6.0
Greater Pittsburgh International (PIT)	160	131	18%	14%	3.8
San Diego International Lindbergh Field (SAN)	57	49	14%	30%	2.5
Denver International (DEN)	218	196	10%	7%	2.2
Salt Lake City International (SLC)	132	105	20%	15%	2.0
Tampa International (TPA)	119	87	27%	4%	1.6
Memphis International (MEM)	152	120	21%	21%	0.4
Honolulu International (HNL)	126	60	52%	N/A	0.0

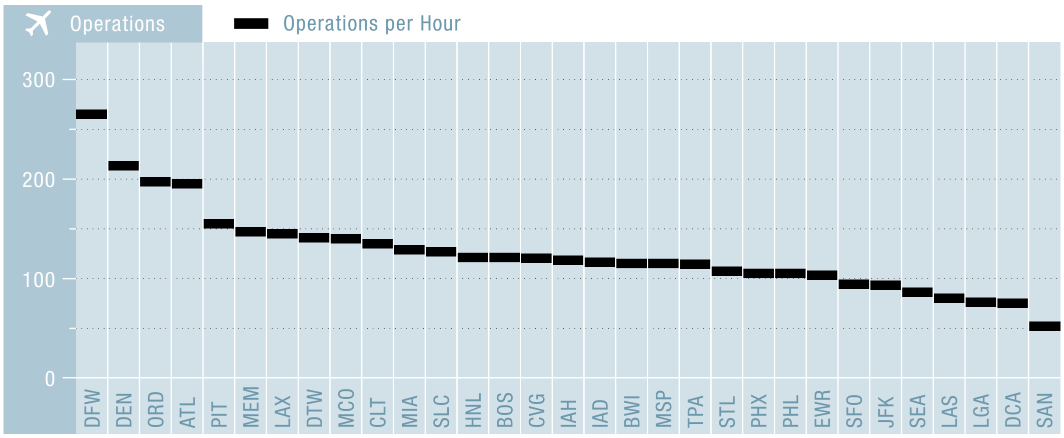
NOTES

- The optimum rate is defined as the maximum number of aircraft that can routinely be handled hourly using visual approaches during periods of unlimited ceiling and visibility.
- The reduced rate is defined as the maximum number of aircraft that can routinely be handled during reduced visibility conditions when radar is required to provide separation between aircraft.
- The published Benchmark Report shows a range for each airport's optimum and reduced rate, taking into account varying estimates by the facilities and the computer model. For simplification, only the high estimates are presented here.
- Capacity loss is the percent difference between the optimum and reduced rate.
- Percent time IFR based on meteorological conditions from 7 AM to 10 PM in CY 2000 for airport-specific ceiling and visibility criteria.
- Delays of 15+ minutes per 1000 operations from FAA OPSNET, CY 2000.

Pacing airports are highlighted

Dallas-Ft. Worth, with four parallel runways and three additional runways, has the highest optimum benchmark rate in the U.S. by a large margin, at 270 operations per hour. Denver, at 218 operations per hour, has the second highest optimum benchmark, closely followed by Chicago O'Hare at 202 and Atlanta Hartsfield at 200 (Figure 1-4).

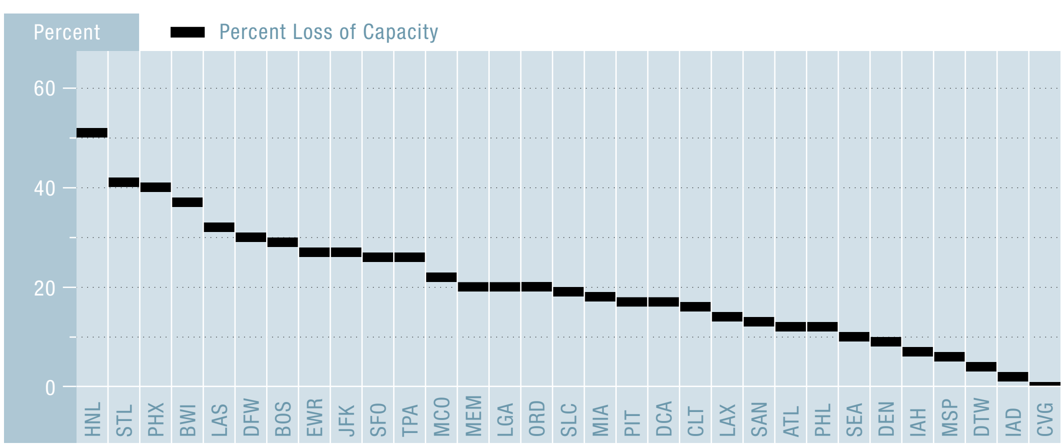
Figure 1-4 Optimum Rates for the 31 Benchmarked Airports



Significantly, while Chicago O'Hare and Atlanta Hartsfield are among the highest capacity airports in the U.S., they are also among the most delayed. In CY 2000, Chicago O'Hare had the third highest rate of delays and Atlanta Hartsfield had the eighth highest rate. Existing capacity at these airports does not appear to be sufficient to efficiently handle the high volume of traffic that they experience.

Figure 1-5 ranks the benchmarked airports by the percentage loss of capacity under reduced conditions. Denver, with five non-intersecting runways sufficiently spaced to allow three simultaneous landings in bad weather, experiences only a 10 percent reduction in operations during reduced conditions. In contrast, Boston experiences a 30 percent reduction in capacity under reduced conditions. The capacity loss at Boston is frequently caused by wind from the northwest that reduces the number of operational runways from three to two or one.

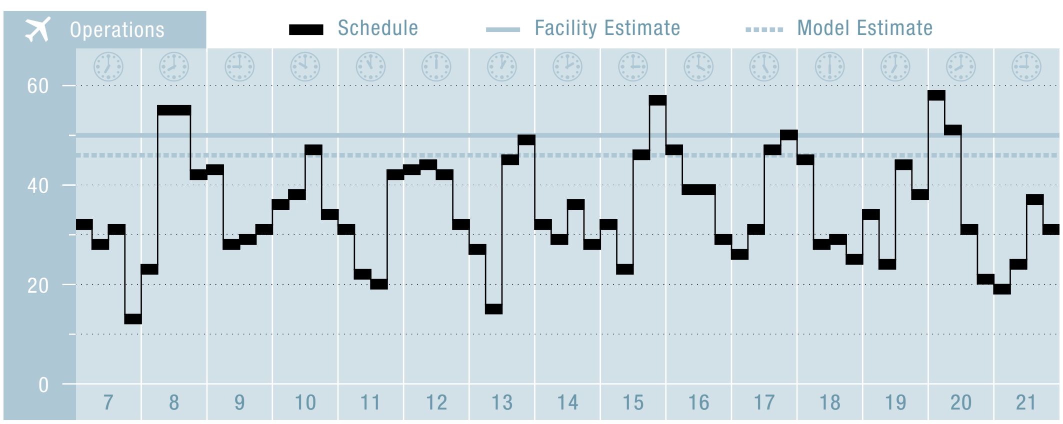
Figure 1-5 Capacity Loss During Adverse Weather at the 31 Benchmarked Airports



The effect of adverse weather on an airport's capacity depends both on the difference between the optimum and reduced benchmark rates, and the proportion of time that adverse weather occurs. For example, San Francisco, which is commonly subject to heavy fog, experiences instrument meteorological conditions approximately 26 percent of the time,[1] whereas Tampa International Airport, which typically has clear, calm weather, experiences instrument meteorological conditions approximately four percent of the time. Like San Francisco, Tampa experiences a 27 percent loss of capacity under reduced conditions. But because instrument meteorological conditions are so prevalent at San Francisco, its capacity loss over time due to adverse weather is more substantial than the loss experienced by Tampa. Further, San Francisco handles 54 percent more operations than Tampa. So not only is San Francisco more likely than Tampa to experience significant loss of capacity due to adverse weather, but also, the loss of capacity at San Francisco affects more passengers and flights.

Many of the benchmarked airports exceed their optimum and reduced rates several times per day during periods of highly concentrated arrival and departure traffic. For example, at the time the benchmarks were calculated in April 2001, scheduled operations at Atlanta Hartsfield were at or above good-weather capacity for almost two hours of the day. Figure 1-6 shows scheduled arrivals and departures and the benchmark for 15-minute intervals at Atlanta under optimum conditions. Figure 1-7 shows that under reduced conditions, capacity is lower and scheduled traffic exceeds capacity more than five hours of the day.[2]

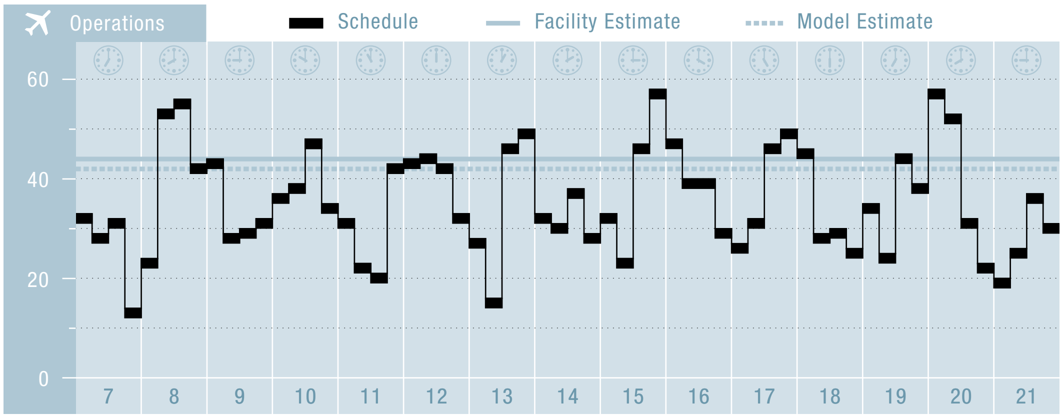
Figure 1-6 Scheduled Operations and Optimum Rate Boundaries – Atlanta Hartsfield International



1 For the purposes of this discussion, the percent of time the airport operates under instrument flight rules was used as a proxy for percent of time operating under reduced conditions.

2 Scheduled carrier operations constitute a significant part, but not all, of an airport's traffic. General aviation, and military operations, non-scheduled flights, and cargo operations typically account for between 1 and 30% of the total traffic at the 31 airports studied.

Figure 1-7 Scheduled Operations and Reduced Rate Boundaries – Atlanta Hartsfield International



In contrast, traffic at certain airports rarely reaches capacity. For example, at Baltimore-Washington International (BWI) air carrier schedules are well below capacity throughout the day when the weather is good (Figure 1-8). In adverse weather, scheduled departures occasionally exceed capacity, but significant delays are infrequent (Figure 1-9). Therefore, although capacity at BWI drops by 38 percent under reduced conditions, the traffic level at BWI is such that flights can generally continue to flow efficiently even when the weather is less than ideal. BWI experienced fewer than seven delays per thousand operations in the year 2000. However, demand at BWI is projected to grow by 27 percent over the next 10 years, suggesting that capacity enhancements may be needed to keep delays to a manageable level.

Figure 1-8 Scheduled Operations and Optimum Rate Boundaries – Baltimore-Washington International

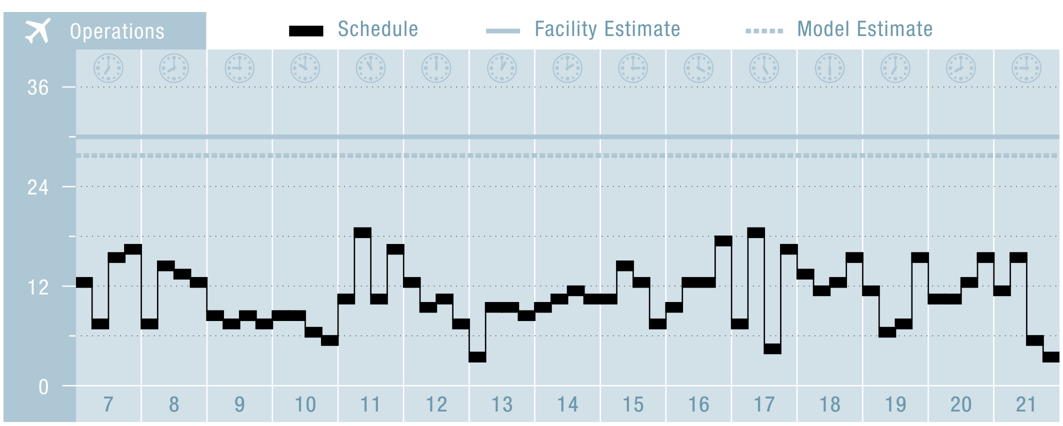
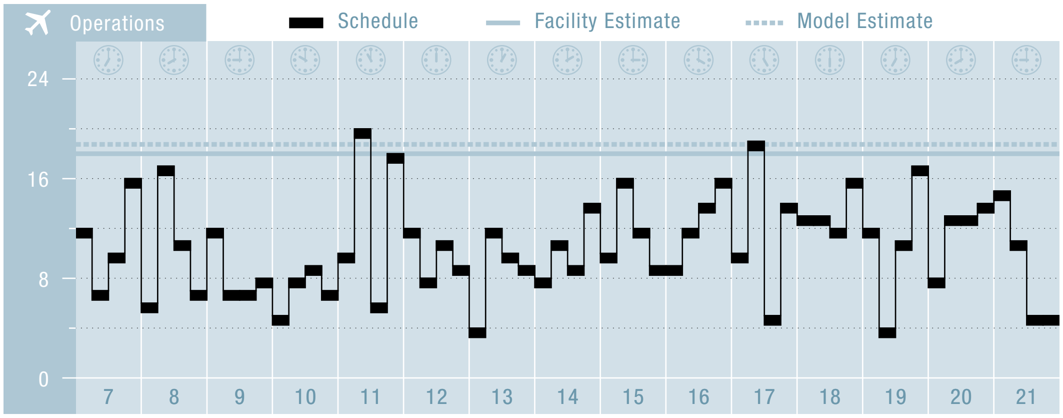


Figure 1-9 Scheduled Operations and Reduced Rate Boundaries – Baltimore-Washington International



1.3 Proposed Airport Modifications

For the past 15 years, the FAA's Office of System Capacity (ASC) has worked with airport sponsors and air traffic control facilities across the U.S. to assess alternatives for increasing airport capacity and reducing delay. ASC has conducted capacity studies at 24 of the 31 benchmarked airports, and recently developed plans to improve the operational efficiency at the eight pacing airports through a combination of airfield and terminal construction, enhanced technology, enhanced airspace design, and improved procedures. ASC is currently participating in delay reduction teams at John F. Kennedy, LaGuardia, Philadelphia, and Chicago O'Hare. Various other FAA organizations also are working to enhance capacity at the benchmarked airports. For example, the Eastern Region Capacity Enhancement Task Force, composed of representatives from the airports, airlines, and FAA regional Air Traffic and Airports divisions, meets quarterly to facilitate and coordinate short-term air traffic capacity improvements in the New York area.

The most significant airfield enhancement that an airport can make, building a new runway, is typically difficult to implement, not only because of the significant cost and time such projects require, but also because of resident opposition. Thirteen new runways are scheduled to open at the benchmarked airports between 2002 and 2007. However, only two of those runways are at the eight pacing airports. A fifth parallel runway at Atlanta, expected to open in 2005, will result in a significant increase in capacity. A runway at Boston, expected to open in 2005, would help to reduce delays in adverse weather, but is not expected to increase the capacity of the airport. Additional airports, such as Chicago O'Hare and San Francisco are considering new runways, but their plans have not advanced to the point where their impact can be estimated. Figure 1-10 shows the runway projects that are planned at the 31 benchmarked airports.

Figure 1-10 Runway Projects at the 31 Benchmarked Airports

Airport (ID)	Runway	Date	Capacity Improvement (Percent) VFR	IFR
Phoenix Sky Harbor International (PHX)	7/25	Operational–2000	36%	60%
Detroit Metro Wayne County (DTW)	4/22	Operational–2001	25%	17%
Denver International (DEN)	16R/34L	2003	18%	4%
Miami International (MIA)	8/26	2003	10%	20%
Houston Bush Intercontinental (IAH)	8L/26R	2003	35%	37%
Orlando International (MCO)	17L/35R	2003	23%	34%
Charlotte/Douglas International (CLT)	18W/36W	2004	18%	15%
Minneapolis-St. Paul International (MSP)	17/35	2004	40%	29%
Atlanta Hartsfield International (ATL)	9S/27S	2005	31%	27%
Cincinnati-Northern Kentucky (CVG)	17/35	2005	26%	26%
Seattle-Tacoma International (SEA)	16W/34W	2006	52%	46%
Lambert St. Louis International (STL)	12R/30L	2006	14%	84%
Dallas-Fort Worth International (DFW)	18L/36R	2007	11%	37%
Washington Dulles International (IAD)	12R/30L	2007	46%	54%

NOTE

A new runway is being added to Boston Logan International Airport (2005) to reduce delay in certain runway configurations. It is not expected to increase the capacity of the airport.

Aside from building new runways, the Benchmark Report summarizes other efforts the FAA and airports are pursuing to enhance capacity. For example, the FAA is developing area navigation (RNAV) arrival and departure routes for a variety of airports with an increased number of transition points to the en route airspace, which gives controllers more flexibility in routing aircraft and will improve benchmark rates over time. Also, near-term National Airspace Redesign initiatives to address seven specific areas of congested airspace, referred to as choke points, are expected to provide more efficient flows, greater access to overhead streams, and additional terminal airspace capacity surrounding several of the benchmarked airports. In addition, Free Flight technologies such as the traffic management advisor (TMA), which assists en route controllers in managing traffic flow to selected major airports, and the passive final approach spacing tool (pFAST), which assists controllers in sequencing aircraft and making runway assignments on approach, are expected to result in more efficient use of runway capacity. Further, several airports with closely spaced parallel runways, such as San Francisco and John F. Kennedy, are exploring use of the precision runway monitor (PRM), a radar with a high-update rate combined with a monitor that provides automated alerts, to allow independent approaches to parallel runways under reduced visibility conditions.

Figure 1-11 shows the percentage increases in capacity projected for the eight pacing airports under optimum and reduced conditions over the next ten years, and the percentage change in projected operations. Of the eight airports, only at Atlanta are capacity increases projected to keep pace with traffic increases, indicating that significant delays are likely to continue at the other seven pacing airports. Summaries of the planned capacity enhancements for the eight pacing airports follow Figure 1-11.

Figure 1-11 FAA's Projected Increases in Capacity and Operations at the Eight Most Delayed Airports

Airport (ID)	New Runway (If Planned) Optimum	New Runway (If Planned) Reduced	New Technology* Optimum	New Technology* Reduced	New Runway Plus New Technology** Optimum	New Runway Plus New Technology** Reduced	2010 Projected Growth in Operations
Atlanta Hartsfield International (ATL)	31	27	5	7	37	34	28
Philadelphia International (PHL)	–	–	17	11	17	11	23
New York LaGuardia (LGA)	–	–	10	3	10	3	17
Newark International (EWR)	–	–	10	7	10	7	20
Chicago O'Hare International (ORD)	–	–	6	12	6	12	18
Boston Logan International (BOS)	0	0	4	4	4	4	6
New York John F. Kennedy International (JFK)	–	–	2	3	2	3	18
San Francisco International (SFO)	–	–	0	3	0	3	18

* Estimates assume that new runways (where applicable) are in place.
** Estimates include compounding effects of new runways and new technologies and are not strictly additive.

1.3.1 LaGuardia

LaGuardia, New York's smallest but most convenient commercial airport, had the highest delay rate of any airport in the U.S. in 2000. With limited space and only two, intersecting runways, capacity is insufficient to meet demand, resulting in average flight delays of more than 40 minutes in both good and adverse weather. In 2000, LaGuardia had more flights than John F. Kennedy, which has four runways. Airspace initiatives such as targeted choke point action items and the development of improved arrival and departure routes are expected to improve traffic flow in the airport vicinity in the near term. However, there is no planned airport construction that would reduce delays on the airport surface or that would materially add to airside capacity.

LaGuardia is a slot-controlled airport, meaning that the number of takeoffs and landings are limited. In April 2000 slot controls were eased to provide access to smaller carriers and improved jet service to under-served communities, and by September 2000 the number of daily operations had increased from 1,064 to more than 1,300, resulting in flight delays which accounted for 25 percent of flight delays nationwide. In response, a moratorium on new flights was imposed, and the flights that had recently been added were scaled back. Subsequently, a temporary slot lottery was instituted which limited the number of daily flights to about 1,200. The lottery is scheduled to expire in October 2002.

The FAA has proposed a combination of market-based and administrative approaches for coping with congestion at LaGuardia after the existing lottery expires. Market-based options include landing fees based on peak-hour pricing, and a phased-in auctioning of certain takeoff and landing rights. Administrative options include holding a slot lottery that gives priority to operators using larger aircraft, and variations of the current slot allocation system which would set aside certain slots for service to small communities and possibly new entrants.

The Port Authority of New York and New Jersey has begun delay reduction studies for both LaGuardia and John F. Kennedy Airports in cooperation with Capacity Enhancement Task Forces made up of representatives of the FAA, airlines, other users, and the Port Authority. As part of these studies, capacity analyses will be conducted for both airports.

1.3.2 Newark International Airport

Newark had the second highest delay rate of any airport in the U.S. in 2000. Newark's scheduled traffic meets or exceeds its good-weather capacity for three hours per day and exceeds adverse-weather capacity for 7 1/2 hours of the day. On good weather days, six percent of the flights are delayed and on adverse weather days 18 percent are delayed.

In the near term, no airport construction that would reduce delays on the airport surface or that would materially add to airside capacity is planned. However, improved arrival and departure procedures, and the implementation of choke point action items and other airspace modifications, are expected to provide more efficient flows, improved access to overhead streams, and additional terminal airspace capacity. In addition, Newark is a good candidate for using a PRM to allow simultaneous offset instrument approaches to its parallel runways, which are spaced 900 feet apart.

The Port Authority of New York and New Jersey, airlines, and FAA's Office of System Capacity worked together on a Capacity Enhancement Plan for Newark, which was published in 2000. This study examined the delay reduction potential of additional runway and related infrastructure improvements and recommended a number of capacity enhancements at Newark for further study.

1.3.3 Chicago O'Hare

Chicago O'Hare had the third highest delay rate of any airport in the U.S. in 2000. Chicago's scheduled traffic meets or exceeds its good weather capacity for 3 1/2 hours of the day and exceeds its adverse-weather capacity for eight hours of the day. On good weather days about two percent of the flights are delayed and on adverse weather days 12 percent of the flights are delayed.

O'Hare's seven runways allow more than 2,500 operations per day, but because nearly all of the runways intersect one or more of the others, during periods of limited visibility planes are permitted to land only at two non-intersecting runways. The restriction of land-and-hold-short operations (LAHSO), a procedure that permits simultaneous operations on intersecting runways, at O'Hare in 1999, resulted in a reduction of 36 to 40 operations per hour in one of the most commonly used runway configurations.

Planned airport construction at O'Hare will reduce delays on the airport surface but will not materially add to airside capacity. The World Gateway program will reduce delays due to gate congestion by adding 20 to 30 gates, and improve circulation on the airport surface through taxiway extensions and modifications.

No new runways for O'Hare are in the advanced planning stages. However, the mayor of Chicago recently proposed adding two runways at the airport, which could allow the number of flights to increase by 50 percent and alleviate the substantial delays that currently plague the airport. The proposed runways would allow simultaneous operations in reduced visibility.

The FAA is participating on the O'Hare Delay Task Force to identify near- and long-term solutions to the problems of flight delays at the airport. The task force will address technology improvements, air traffic procedures, and airline decision making during inclement weather. The task force is expected to release a report with recommendations by the spring of 2002.

1.3.4 San Francisco International Airport

San Francisco had the fourth highest delay rate of any airport in the U.S. in 2000. San Francisco's current scheduled traffic can be handled efficiently during good-weather conditions, but scheduled traffic exceeds adverse-weather capacity for more than five hours of the day. On average, six percent of flights are delayed 15 minutes or more, but in adverse weather this escalates to 17 percent.

A new international terminal that opened in December 2000 is helping to reduce gate delays. In addition, new taxiways and high-speed turnoffs will improve runway utilization and may thereby improve airside capacity. In IFR conditions, San Francisco is limited to a single arrival stream to its closely spaced parallel runways, which significantly reduces throughput. The airport recently purchased a PRM for the purpose of allowing dual arrival streams in IFR conditions. The final safety analyses for conducting simultaneous offset instrument approaches to its parallel runways are underway. In the longer term, San Francisco proposes to significantly revise its runway configuration. One proposal to increase the spacing between its parallel runways to allow dual arrival streams in bad weather would require filling in portions of San Francisco Bay.

1.3.5 Boston Logan International Airport

Boston had the fifth highest delay rate of any airport in the U.S. in 2000. Boston's scheduled traffic can be handled efficiently during good-weather conditions, but scheduled traffic exceeds adverse-weather capacity for 8 hours of the day. On adverse weather days, about 12 percent of the flights are delayed versus four percent on good weather days. The loss of LAHSO in 1999 at Boston resulted in eight fewer operations per hour in one of the most commonly used runway configurations.

Massport is proposing a new runway to open in 2005. It will not affect the Boston capacity benchmarks, but will help mitigate delays currently encountered during Northwest wind conditions when the airport is currently reduced to a dual or a single runway operation. Terminal construction will reduce gate contention delays, and new taxiways and high-speed turnoffs will improve runway utilization, thereby minimally improving airside capacity.

1.3.6 Philadelphia International Airport

Philadelphia had the sixth highest delay rate of any airport in the U.S. in 2000. Philadelphia's scheduled traffic peaks can be handled efficiently during good-weather conditions, but scheduled traffic exceeds adverse-weather capacity for 3 1/2 hours of the day. On adverse weather days, about 14 percent of the flights are delayed.

A new parallel commuter runway was opened at Philadelphia in 2000. No additional new runways are currently planned. However, terminal construction will reduce delays due to gate congestion, and new taxiways and high-speed turnoffs will improve runway utilization and may thereby improve airside capacity. Use of the recently commissioned PRM for simultaneous operations to the two main runways during periods of reduced visibility offers the potential for further increases in operational flexibility and airport capacity. The airport is in the process of a significant master planning effort, which is focused on the airfield.

1.3.7 New York John F. Kennedy International Airport

John F. Kennedy had the seventh highest delay rate of any airport in the U.S. in 2000. John F. Kennedy's scheduled traffic peaks can be handled efficiently during good-weather conditions, but scheduled traffic exceeds adverse-weather capacity for more than 5 hours of the day. On adverse weather days, about 9 percent of the flights are delayed.

In the near term, there is no planned airport construction that would reduce delays on the airport surface or that would materially add to airside capacity. However, the Port Authority of New York and New Jersey has begun a delay reduction study in cooperation with the FAA, airlines, and other airport users. Possible airport enhancements include instrument landing system (ILS) upgrades, re-introduction of LAHSO procedures, exit taxiway improvements, and a runway extension. In addition, modifications to airspace, such as the creation of new sectors, will result in more efficient routing and reduced interactions between aircraft to and from other airports in the region. The Benchmark Report estimates that procedural, airspace, and technology improvements only improve good-weather capacity by two percent and adverse-weather capacity by three percent over the next 10 years.

1.3.8 Hartsfield Atlanta International Airport

Atlanta had the eighth highest delay rate of any airport in the U.S. in 2000. Even when the weather is good, scheduled traffic at Atlanta meets or exceeds its good-weather capacity for almost two hours per day. During adverse weather, scheduled traffic exceeds adverse-weather capacity for more than eight hours of the day. As a result, on good weather days, about three percent of the flights are delayed, and on adverse weather days six percent of the flights are delayed.

A new runway, planned for completion in 2005, is expected to improve Atlanta's capacity benchmark by 31 percent in good weather and by 27 percent in adverse weather.[3] Additional taxiways and high-speed turnoffs, plus terminal construction will reduce gate contention delays and improve runway utilization.

New arrival and departure routes will improve efficient traffic flow and increase the benchmarks further. In addition, the use of a PRM could potentially allow triple simultaneous approaches.

1.4 Reaction to the Benchmarks

The Airport Capacity Benchmark Report has been recognized as an important step in understanding the relationship between airline demand and airport capacity. The FAA, airports, and airlines have already begun to use the benchmarks to target and address system inefficiencies and limited capacity. Even before the benchmarks were published, several airlines began to modify their schedules to help reduce delays at their hubs. For example, in Atlanta, Delta began to spread its flights more evenly across the day, reducing the number of flights per bank but adding two additional banks. The change resulted in fewer flights at peak times, but more arrivals and departures overall and fewer delays.

3 According to one estimate the new runway could increase capacity in IFR conditions by as much as 50 percent if triple independent IFR approaches using a PRM can be conducted.

United Airlines began running fewer flights among its five hubs, but using the larger planes to carry more passengers on each trip.

The FAA, Congress, and various airports are also considering demand management strategies such as additional slot limitations, limited antitrust immunity for airlines to allow coordinated scheduling, and peak hour pricing as supplements to ongoing capacity enhancement strategies. In addition, efforts are underway to streamline the process of planning and constructing runways by reducing the amount of time required for environmental analyses, and modifying the process to allow concurrent, rather than sequential, accomplishment of key milestones.

Coordinated actions at the Federal, State, and local level, and focus of purpose will be required to increase the capacity of the aviation system and reduce flight delays. The benchmarks are one tool to let us know how much work remains to be done.